

**ABSTRACT**

The present invention provides novel compositions and methods for suppressing the expression of a targeted gene using mRNA-cDNA duplexes. The invention further provides novel methods and compositions for generating amplified mRNA-cDNA hybrids, whose quantity is high enough to be used for the invention's gene silencing transfection. This improved RNA-polymerase chain reaction method uses thermocycling steps of promoter-linked double-stranded cDNA or RNA synthesis, *in vitro* transcription and then reverse transcription to amplify the amount of mRNA-cDNA hybrids up to two thousand folds within one round of the above procedure.

BIOLOGICAL MATERIALS